

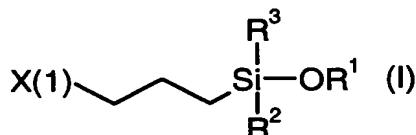
Claims

1. Primer composition comprising a compound **A1** comprising isocyanate-reactive groups for the preparation of which the following are used

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- a polyisocyanate **A** which has at least three isocyanate groups;

- at least one silane **B** of the formula



10 whereby R^1 represents methyl or ethyl,

R^2 a C₁-to C₄-alkyl or OR¹,

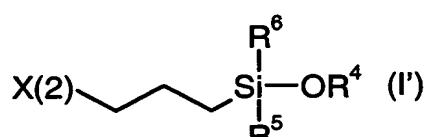
R^3 H, a C₁-to C₄-alkyl or OR¹,

X(1) a primary amino group or at least an organic residue carrying primary amino groups and;

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- a cross-linking agent **C** having at least three isocyanate-reactive functional groups.

2. Primer composition according to claim 1, characterized in that at least another silane **B** of the formula (I') is used for producing compound **A1** comprising isocyanate-reactive groups



whereby R^4 represents methyl or ethyl,

R^5 a H, a C₁-to C₄-alkyl or OR⁴,

R^6 a H, a C₁-to C₄-alkyl or OR⁴,

X(2) a primary amino or mercapto or hydroxylic group or an organic residue

5 which carries at least a primary amino or mercapto or hydroxylic group.

3. Primer composition according to claim 2, characterized in that $R^6 = OR^4$ in silane **B**, particularly $R^6=R^5=OR^4$.

10 4. Primer composition according to claim 2 or claim 3, characterized in that $R^4 =$ methyl in silane **B**.

5. Primer composition according to any of the claims 2 to 4, characterized in that X(2) = SH, NH₂ or OH, particularly SH, in silane **B**.

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6. Primer composition according to any of the preceding claims, characterized in that the primer composition is essentially free from isocyanate groups.

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7. Primer composition according to any of the preceding claims, characterized in that the polyisocyanate **A** is a biuret or an isocyanurate of one or more diisocyanates or an adduct of polyisocyanate and polyol.

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8. Primer composition according to any of the preceding claims, characterized in that the polyisocyanate **A** is an isocyanurate of an aliphatic diisocyanate, preferably an isocyanurate of hexamethylenediisocyanate.

9. Primer composition according to any of the preceding claims, characterized in that $R^3=OR^1$, particularly $R^3=R^2=OR^1$, in silane **B**.

10. Primer composition according to any of the preceding claims, characterized in that R¹ = methyl in silane **B**.

11. Primer composition according to any of the preceding claims, characterized in

5 that they have at least three isocyanate-reactive functional groups of the cross-linking agent **C**, all are identical or different from one another, preferably all are identical and are selected from SH, OH, NH or NH₂.

12. Primer composition according to any of the preceding claims, characterized in

10 that the cross-linking agent **C** is a polyol, particularly a triol.

13. Primer composition according to claim 12, characterized in that the cross-

linking agent **C** has a OH-equivalent weight of 30 – 350 g/eq, particularly 30 – 170 g/eq, preferably 30 – 65 g/eq.

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14. Primer composition according to any of the preceding claims, characterized in

that the cross-linking agent **C** has a molecular weight of 90 – 100 g/mol, particularly 90 – 500 g/mol, preferably 120 – 150 g/mol.

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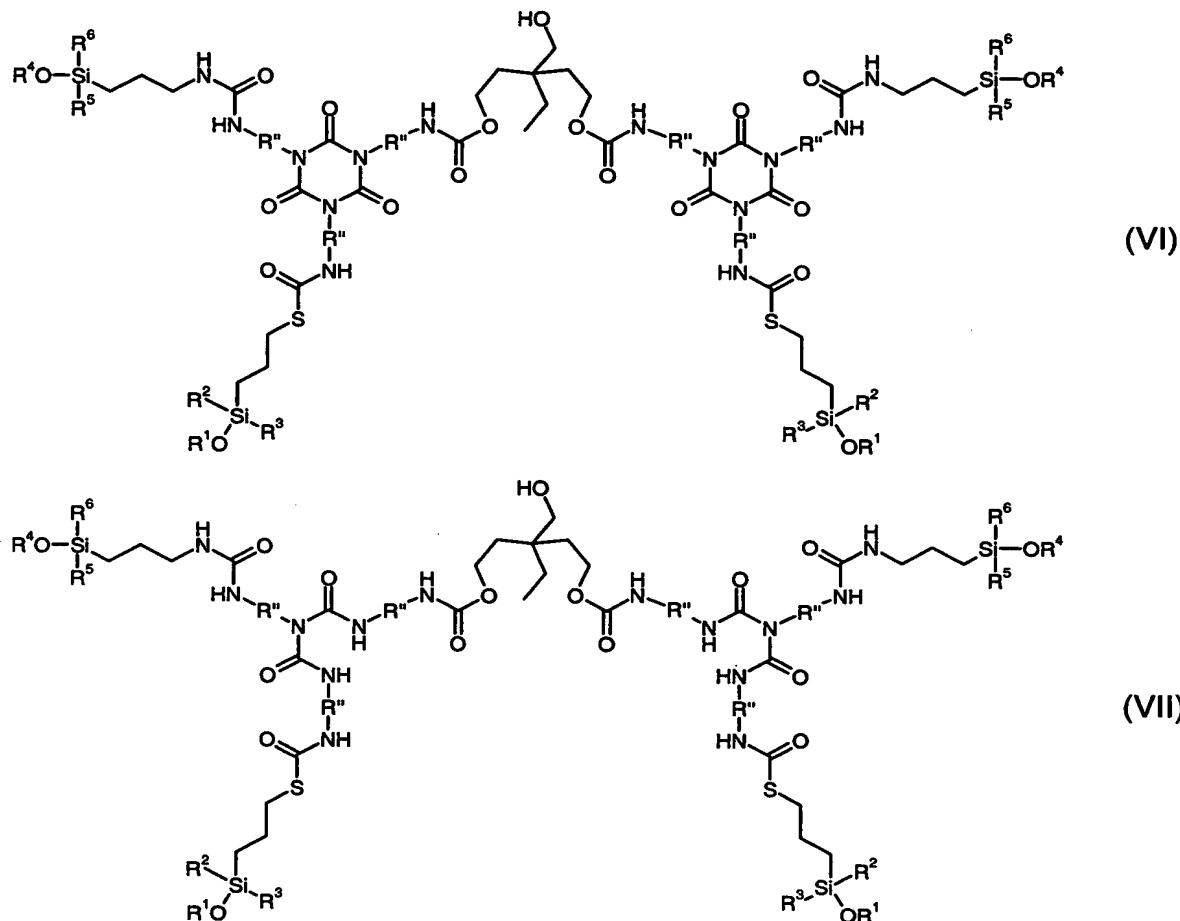
15. Primer composition according to any of the preceding claims, characterized in

that the compound **A1** is the reaction product of a cross-linking agent **C** and an intermediate product **AB** which is carrying isocyanate groups and which is previously formed from a polyisocyanate **A** and at least a silane **B** of the formula (I) in a stoichiometric excess of isocyanate groups of the polyisocyanate **A** with respect to the isocyanate-reactive groups of silane **B**.

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16. Primer composition according to any of preceding claims, characterized in that

the compound **A1** has the formula (VI) or (VII)



whereby R" represents a divalent residue, particularly an aliphatic alkylene residue, preferably hexamethylene residue;

R⁴ represents R¹, methyl or ethyl;

5 R⁵ represents R², H, C₁-to C₄-alkyl or OR⁴;

R⁶ represents R³, H, C₁-to C₄-alkyl or OR⁴.

17. Primer composition according to any of the preceding claims, characterized in
that in addition to the compound A1 a coupling agent, particularly a silicon-
10 organic compound, preferably a trialkoxy silane, is also present.

18. Primer composition according to claim 17, characterized in that the coupling agent is a trialkoxy silane carrying primary amino groups, particularly a trimethoxy silane having primary amino groups or a trialkoxy silane having vinyl groups.

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19. Primer composition according to any of the preceding claims, characterized in that in addition to the compound **A1** a catalyst, particularly a tin-organic catalyst, preferably selected from the group consisting of dibutyl tin dilaurate, dibutyl tin dichloride, tin-thioester complexes, mono-n-butyl tin trichloride, di-n-butyl tin oxide, di-n-butyl tin diacetate and dibutyl tin carboxylate is also present.

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20. Primer composition according to any of the preceding claims, characterized in that in addition to the compound **A1** a solvent which does not react with isocyanates at room temperature and which is preferably selected from the group consisting of xylene, toluene, hexane, heptane, octane, acetone, methylethyl ketone, methylpropyl ketone, methylisopropyl ketone, methylbutyl ketone, diethyl ketone, diisopropyl ketone, methyl acetate, ethyl acetate, propyl acetate, butyl acetate, methoxy-ethyl acetate, methoxy-propyl acetate and 2-(2-methoxy-ethoxy) ethyl acetate.

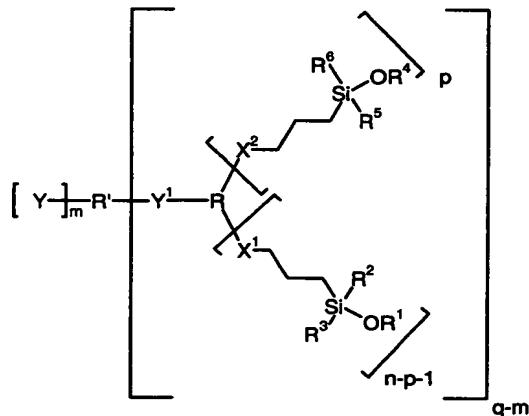
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21. Primer composition according to any of the preceding claims, characterized in that at least a filler, particularly carbon black is present.

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22. Compound of formula



whereby

- 5 R^1 represents methyl or ethyl;
- R^2 represents a H, a C₁-to C₄-alkyl or OR¹;
- R^3 represents a H, a C₁-to C₄-alkyl or OR¹;
- R^4 represents a R¹, methyl or ethyl;
- R^5 represents a R², a H, a C₁-to C₄-alkyl or OR⁴;
- 10 R^6 represents a R³, a H, a C₁-to C₄-alkyl or OR⁴;
- R represents a polyisocyanate **A** after removing all the isocyanate groups;
- R' represents a cross-linking agent **C** after removing all the isocyanate-reactive groups;
- 15 X¹ represents a functional group which is produced from the reaction of an isocyanate-reactive group and an isocyanate, particularly an urea, urethane or thiocarbamate group;
- X² represents a functional group which is produced from a reaction of an isocyanate-reactive group and an isocyanate, particularly an urea, urethane or thiocarbamate group;
- 20 Y¹ represents a functional group which is produced from the reaction of an isocyanate-reactive group and isocyanate, particularly an urea, urethane or thiocarbamate group;
- Y represents an isocyanate-reactive group, particularly NH₂, SH or OH;

n represents the values 3, 4, 5 or 6, particularly 3 or 4:

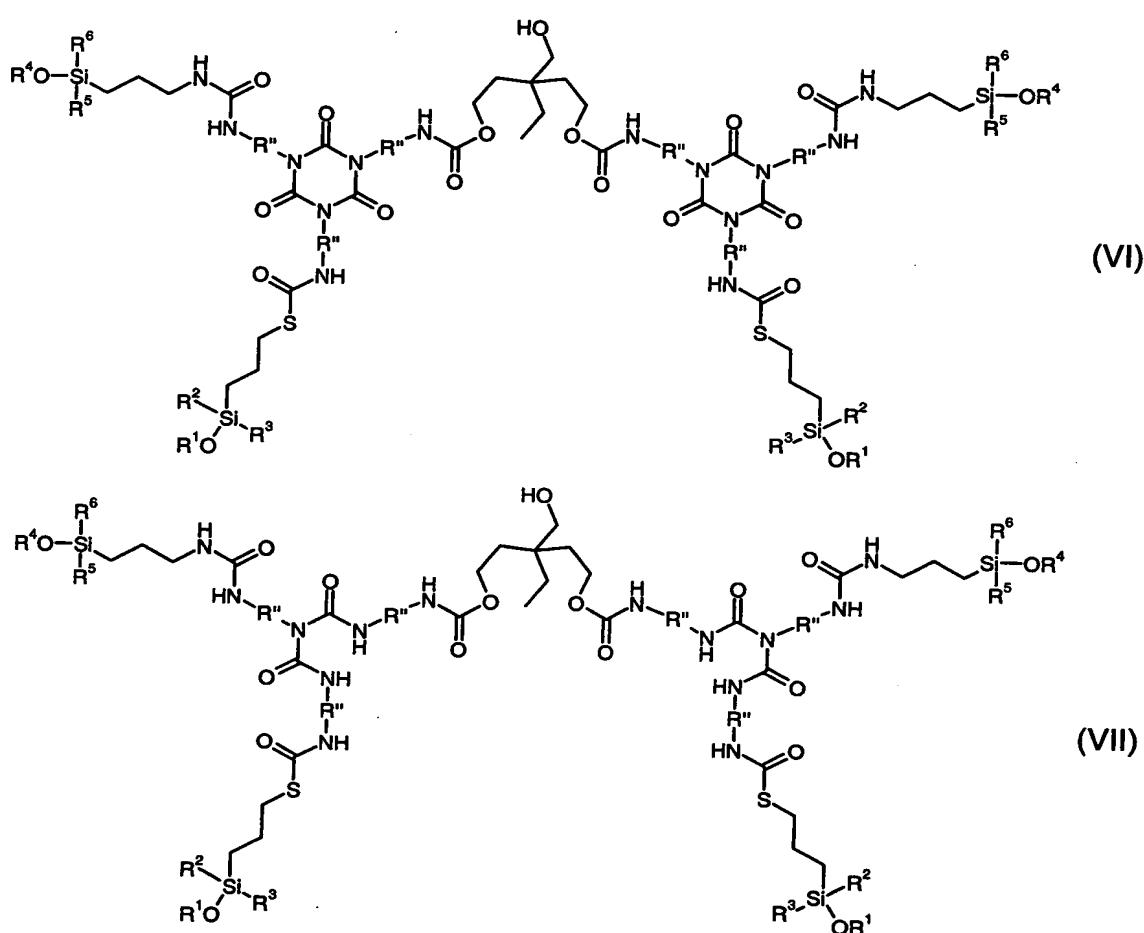
q represents the values 3, 4, 5 or 6, particularly 3 or 4:

p represents the values between 0 and $n-1$:

m represents the values 1, 2, 3 or 4, particularly 1 or 2, selected in such a way

5 that $q - m \geq 2$

23. Compound according to claim 22, characterized in that the compound has the formula (VI) or (VII)



whereby R² represents a divalent residue, particularly an aliphatic alkylene residue, preferably hexamethylene residue;

R⁴ represents a R¹, methyl or ethyl;

R⁵ represents a R², a H, a C₁-to C₄-alkyl or OR⁴;

5 R⁶ represents a R³, a H, a C₁-to C₄-alkyl or OR⁴.

24. Method of using the primer composition according to any of the claims 1 to 21 as a primer for adhesives, sealants or floorings, particularly for 1-component moisture-curing polyurethane adhesives or sealants based on polyurethanes
10 or polyurethane-silane-hybrids.

25. Method characterized in that a primer composition according to any of the claims 1 to 21 is applied by means of brush, felt, cloth or sponge on a substrate manually or automatically or by means of robots.

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26. Method according to claim 25, characterized in that the substrate is glass or glass ceramics.